A case study in designing for accessibility

- What does it mean?:/apple/apple\_
- Why are we doing it?
- Who are we designing for?

Technical Concerns0 cell

• Platforms: o/images/apple/apple

- Most assistive technology, such as screen readers, run on PC's
- Software
  - Screen readers & audio browsers

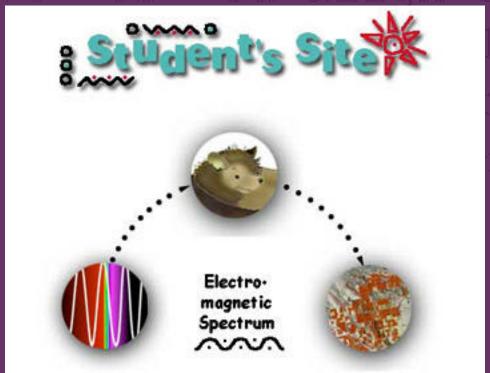
# <asScope.of=Echo.Redesign:ell</pre>

- Code pages for accessibility apple
- Experiment with unique approaches to presenting satellite imagery to the visually impaired
- Launch expected Fall 2000

## <ab Scope of Presentation cell</pre>

- Walk through of the W3Cole/apple\_guidelines
- Our experiences and results

- 5-100%><td align=center wi



\_e/apple\_ ==45 alig = width=3

<IMG SRC="graphic.gif"
ALT="text description">

- Aesthetic Images/Graphics=/apple
- Formatting Images/Graphics
- Informational Images/Graphics

not essential to understanding the pple page content



alt="animated fire"



alt="girl on cell phone"

The 1x1 pixel .gif trick pple/apple
 <img src="spacer.gif" alt=" "> 45 align=" "> 45

Bullet .gifs

<img src="bullet.gif" alt="\*">

width=568>

 Essential to the understanding ple of the content



IR cat

**EM** wave animation

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July 27, 2000

<a href="mailto:tengthier-bescriptions">tablengthier Descriptions</a> cell
<a href="mailto:tength:te

- via ALT attributeges/apple/apple
- via LONGDESC attribute
- alternatives

### What are waves?

Have you ever ridden a wave in the ocean?

Ocean waves travel on the surface of the water. You can see them and you can feel them. As you swim through the water, you can even make your own waves.



Netscape Example

Have you ever seen a flag on a windy day?



American Flag with ripples in it.

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### What are waves?

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Ocean waves travel on the surface of the water. You can see them and you can feel them. As you swim through the water, you can even make your own waves.

of waves breaking - they are ocean waves and they are blue and

Have you ever seen a flag on a windy day?

The wind creates waves in the flag. Both the waves in the flag and the ocean waves are waves Internet Explorer Ex.

American Flag with ripples in it.

### What are waves?

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Ocean waves travel on the surface of the water. You can see them and you can feel them. As you swim through the water, you can even make your own waves.

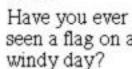




Image of waves breaking - they are ocean waves and they are blue and stuff and I like ocean wa

Netscape - w/o height & width



seen a flag on a American Flag with ripples in it.

URL	Size	Time (secs)
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.html	6.09 K	1.69
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/ems.jpg3	8.54 K	2.37
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.gif	3.32 K	0.92
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.jpg	17.16 K	4.77
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/OS06097.JPG	16.06 K	4.46
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/cellphne.jpg	14.92 K	4.15
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radioteles.jpg	11.77 K	3.27
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/VLA.gif	61.90 K	17.19
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/milkyway.jpg	11.38 K	3.16
Total	151.14 K	41.98
HTTP Request Delays		4.50
Total + Delays		46.48

### Bobby finished.

URL	Size	Time (secs)
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio_noheight.html	5.92 K	1.64
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/ems.jpg3	8.54 K	2.37
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.gif	3.32 K	0.92
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radio.jpg	17.16 K	4.77
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/OS06097.JPG	16.06 K	4.46
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/cellphne.jpg	14.92 K	4.15
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/radioteles.jpg	11.77 K	3.27
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/VLA.gif	61.90 K	17.19
http://imagers.gsfc.nasa.gov/ems_maggie/access_talk/milkyway.jpg	11.38 K	3.16
Total	150.97 K	41.94
HTTP Request Delays		4.50
Total + Delays		46.44

### Bobby finished.

## </table Recommendation=0 cell college=0 cellpadding=0 cellpa

- Aesthetic images es/apple/apple\_
  - Keep ALT descriptions concise
  - Consider omitting height&width if text is only a few words too long
- Informational Images
  - How do we provide lengthier descriptions to our audience?

The W3C suggests using an HTML 4.0 attribute called longdesc. Within the <img> tag, you would reference either a .html or a .txt file, which would contain your long description of the image.

<img alt="yellow cat"
src="yellow\_cat.gif"
longdesc="yellow\_cat.html">

 How does a screen reader e/apple interpret this attribute?

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"Mastering HTML 4.0"

### LONGDESC="..."

Provides a long textual description of images, which is useful for visitors who have text-only browsers or cannot for other reasons view images.

Standard/Usage: HTML 4

Widely Supported: No

Sample:

<IMG SRC='smiley.gif" ALT=':-)"
LONGDESC='This is a smiley face, placed
here for decoration alone.">

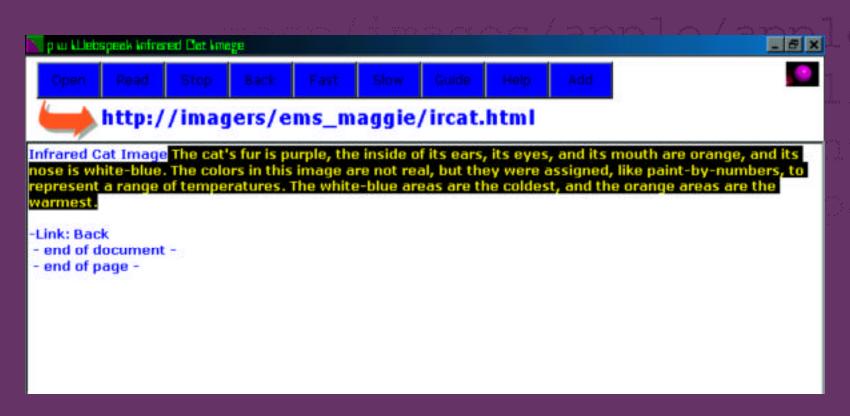
A great site by Joe Clark & Aaron Doust.

http://www.interlog.com/~joeclark/breakthispage.html

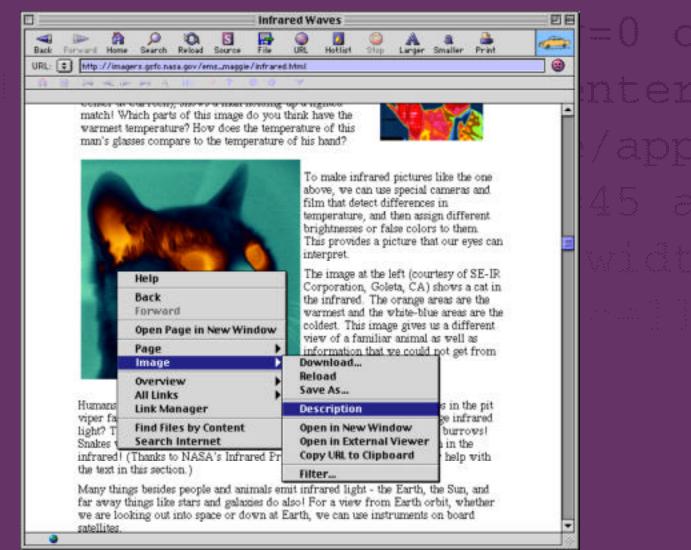
They tried out various methods of implementing accessibility protocol and then invited people to "break" their page.

LONGDESC Browser Support : POOR

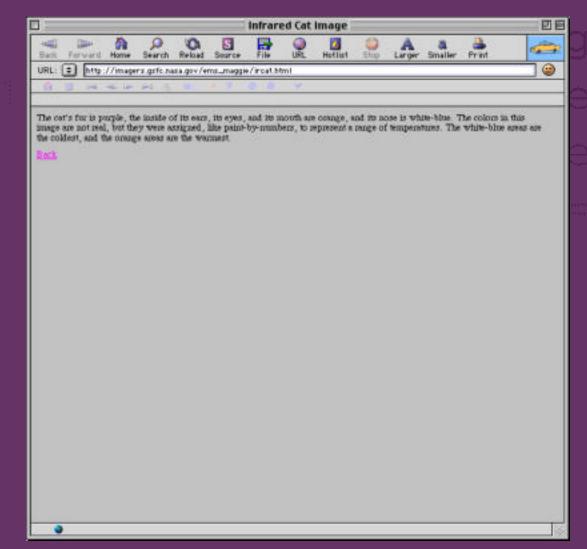
### pwWebspeak p w Webspeak Infrared Waves http://imagers/ems\_maggie/infrared.html Since the primary source of infrared radiation is heat or thermal radiation, any object which has a temperature radiates in the infrared. Even objects that we think of as being very cold, such as an ice cube, emit infrared. When an object is not quite hot enough to radiate visible light, it will emit most of its energy in the infrared. For example, hot charcoal may not give off light but it does emit infrared radiation which we feel as heat. The warmer the object, the more infrared radiation it emits. Humans, at normal body temperature, radiate most strongly in the infrared at a wavelength of about 10 microns. (A micron is the term commonly used in astronomy for a micrometer or one millionth of a meter.) This image ( which is courtesy of the Infrared Processing and Analysis Center at CalTech), shows a man holding up a lighted match! Which parts of this image do you think have the warmest temperature? How does the temperature of this man's glasses compare to the temperature of his hand? - Image with description File - Infrared man-Link: -Image- D Image with description File - Infrared image of a cat.-Link: -Image- D To make infrared pictures like the one above, we can use special cameras and film that detect differences in temperature, and then assign different brightnesses or false colors to them. This provides a picture that our eyes can interpret. The image at the left (courtesy of SE-IR Corporation, Goleta, CA) shows a cat in the infrared. The orange areas are the warmest and the white-blue areas are the coldest. This image gives us a different view of a familiar animal as well as information that we could not get from a visible light picture. Web SetUp The Productivity Works Making the Web Speak



### <**i©ab**/td>



### <iGabtd>



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- pwWebspeak is an audio browser, pplenot a screenreader
- iCab is Mac software, is mouse driven
- Mozilla requires Mac OS 8.5 or later

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- What are they? ages/apple/apple\_
- There are 2 types of d-links
  - TEXTUAL
  - INVISIBLE

The [D] will appear as hypertext next to the image.

### width=568></table

```
<img alt="yellow cat"
    src="yellow_cat.gif"><a
    href="yellow_cat.html"><img
    border=0 alt="[D]"
    src="spacer.gif"></a>
```

The [D] will appear only as an ALT description, not as text on the page, enabling it to be seen when loading without images, and by JAWS.

# dalign=center wi

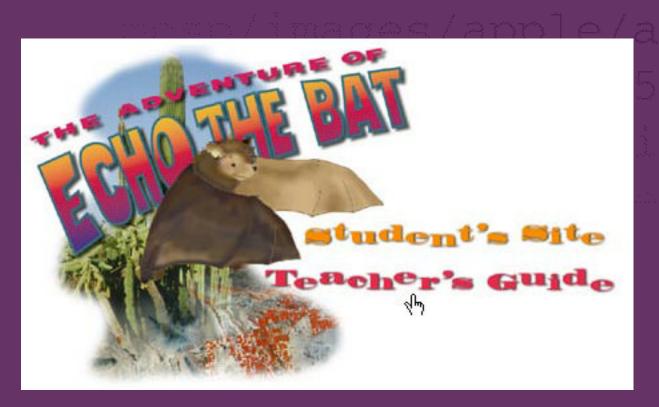
- · Use a .html file rather than .txt-file on le
- D-links won't become obsolete.
   They work like LONGDESC should.
   So if LONGDESC ever starts
   becoming more widespread, then you don't have to replace all of your d-links.

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### Summary of Descriptions 1

- 1) The ALT descriptions work just fine for most images
- 2) If you have an image that is crucial to understanding the concepts on a particular page, be nice to users who can't see it, and write up a good description. Use D -links.

- Aesthetic Graphical Navigation ple
- Informational Graphical Nav.



</table representation = 0 cell
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representation

- Provide ALTernative description | e
- Use Client Side Maps
- Physically locate "map" code near ImageMap graphic in your code.

Oak-Pine Mixed

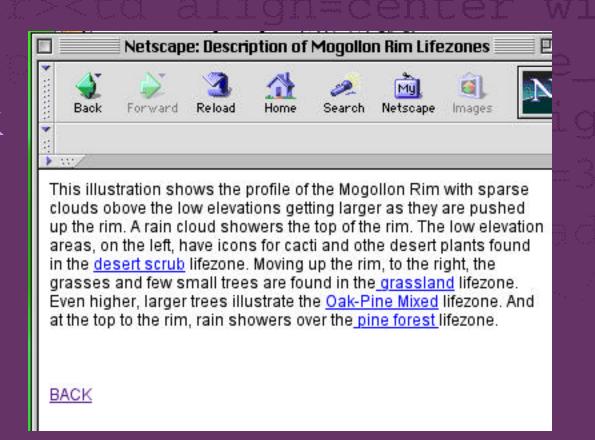
Oak-Pine Mixed

In which habitat would you find Echo?
Click on one of the habitats in the picture.

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### Recommendation cell

In addition, add a D link and embed the image map links into the description

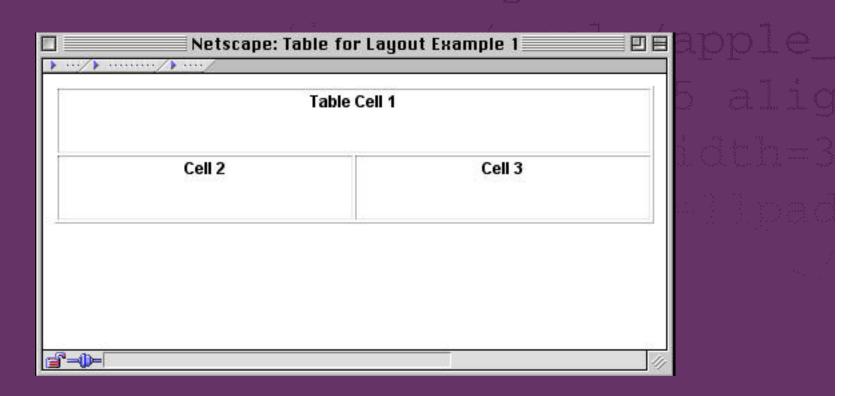


Screen readers allow the users to TAB through the Hypertext links on a page - this is a primary screen navigation tool

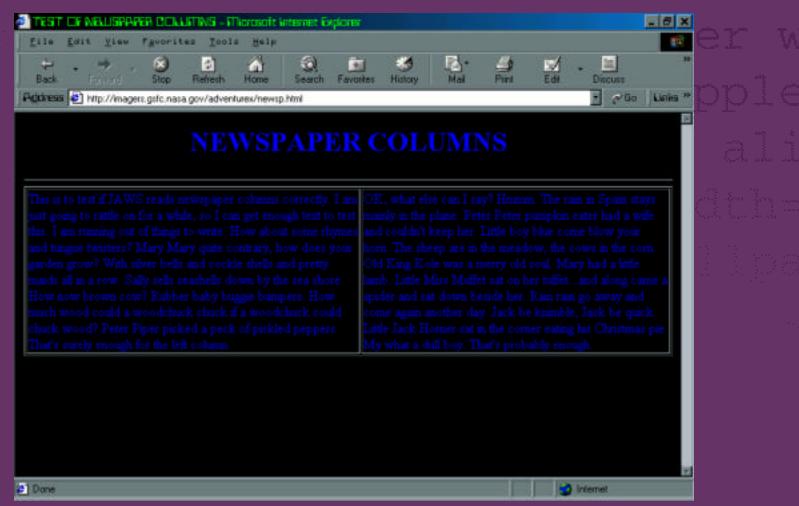
- Reads link text (again)
- Reads file name
- Reads title of page
- Then begins content

- Link text should be informative ple (avoid CLICK HERE)
- Filenames, keep short when possible

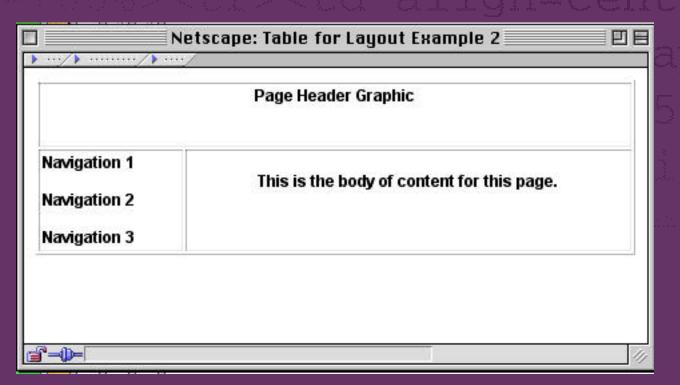
- "Layout Tables" are readable to le screen readers
- Use of "Formatting" graphics
- It is all about good CODE
- Code logically...??



## vidth=568>tr>Collpadding=0 cellpadding=0 cellpadding=0

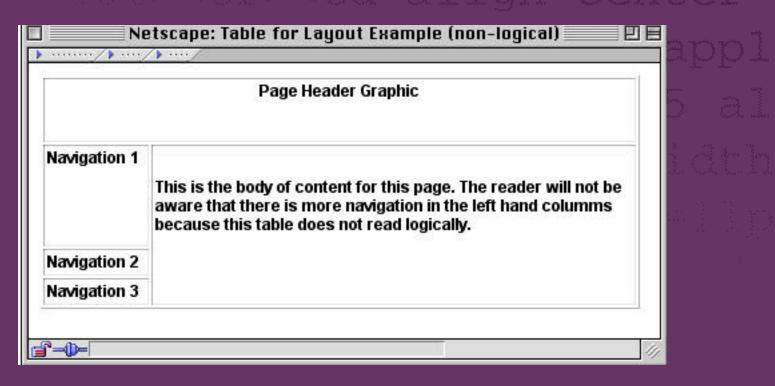


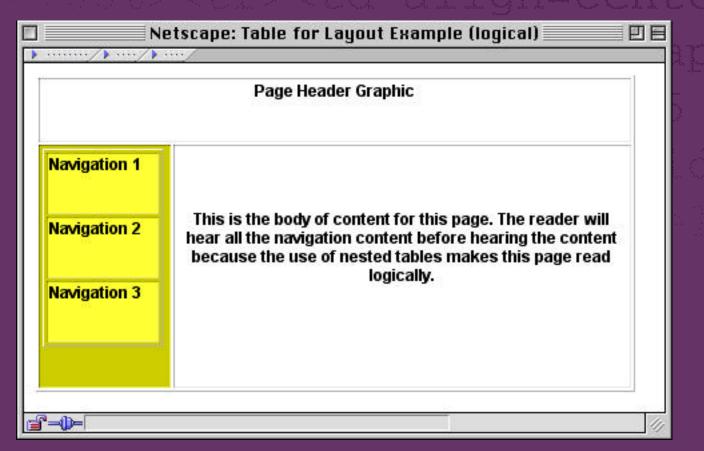
</table border=0 cellpadding=0 cell
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## width=568></table



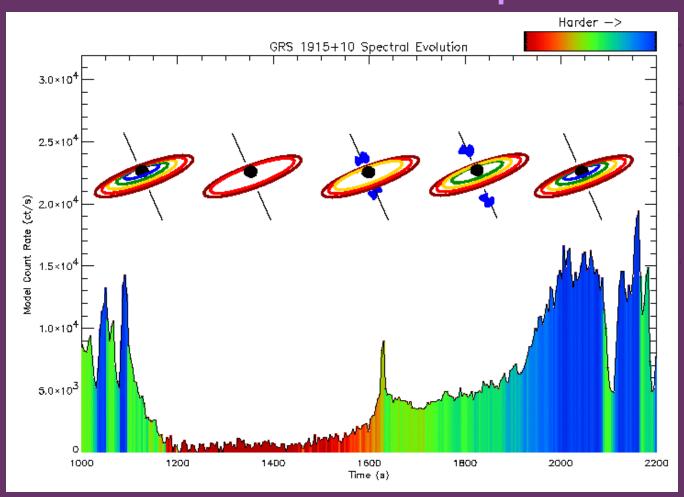






- Code tables to read logically apple.
- Limit number of Formatting
   graphics and add
   ALT = " "
- Consider how code reads
   linearly when using design
   techniques such as "HELMUT"

## width=568></table



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### Writing Descriptions 101 e11



Clouds of smoke from the Cerro Grande fire rise behind state Police Officer Rigo Chavarria as he directs traffic leaving Los Alamos, N.M.

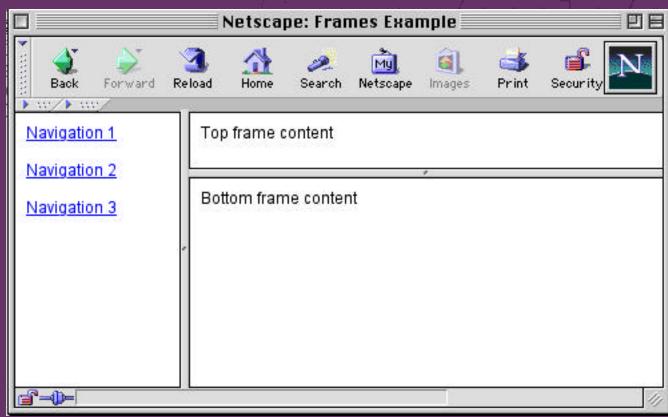
- Tell what it looks like ges/apple/apple
- Use different descriptions than the page text
- Color
- Contrast (light and dark shading)
- Texture
- Spatial Orientation left, right, top, bottom (Where are objects in relation to each other?)
- Relative size of objects

### Sample Description

In the foreground of this color photograph stands a policeman. He is standing in the middle of a street, facing the camera. His arms are raised in the air and his fingers point to the left, directing traffic away from the swiftly approaching wildfires. The expression on his face is very serious. There are only a few cars left on the street, because most people have already evacuated the town. Just behind the policeman to the right, stand two National Guardsmen with a large military truck. Towering gray clouds of smoke from the wildfires rise high into the sky in the not so distant horizon behind the policeman. The billowing clouds of smoke are so tall that they reach out of the photograph, and appear to block the sun. They cast an ominous shadow over the scene.

width=568></table

Use meaningful titles gn=center wi



Use the NOFRAMES tagple/apple

```
FrameExample.html

| January | Janua
```

align=center wi

- Provide meaningful titles le /apple
- Use NONFRAMES when possible

- Use Good CODEages/apple/apple
  - Provide Row and Column Headers
- Summarize Tables

# </table a Checko yourpworkg=0 cell where items are a self and a self a

- We tested our pages using a PCole Pentium System running JAWS for Windows, pwSpeak, and ZoomText
- Laboratory for Terrestrial
   Physics is making this system available to GSFC webmasters

### Top 5 Accessibility Tips

- 5. Client side Image Maps with descriptions
- 4. Use meaningful hypertext link names
- 3. Code tables so they read logically
- 2. Most visually impaired users will be on a PC and using Internet Explorer
- 1. When needed, use d-links, not longdesc!

### Resources

- Lynx Viewer: <a href="http://www.delorie.com/web/lynxview.html">http://www.delorie.com/web/lynxview.html</a>
- Lynx-IT: <a href="http://www.slcc.edu/webguide/lynxit.html">http://www.slcc.edu/webguide/lynxit.html</a>
- JAWS: <a href="http://www.hj.com/JFW/JFW.html">http://www.hj.com/JFW/JFW.html</a>
- pwWebspeak: <a href="http://www.soundlinks.com/pwgen.htm">http://www.prodworks.com/issound/catalog/catalog\_pwwebspeak.ht</a>
   ml
- Windoweyes: <a href="http://www.4access.com/products/we.htm">http://www.4access.com/products/we.htm</a>
- ZoomText: <a href="http://www.aisquared.com/products/zx.htm">http://www.aisquared.com/products/zx.htm</a>
- iCab: http://www.icab.de/info.html
- Bobby: http://www.cast.org/bobby/

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- An example page of how to implement d-links and longdesc tag (Break this page)
  - http://www.mozillazine.org/articles/article678.html http://www.interlog.com/~joeclark/breakthispage.html
- W3C Techniques for Web Content Accessibility: <a href="http://www.w3.org/TR/WAI-WEBCONTENT-TECHS/">http://www.w3.org/TR/WAI-WEBCONTENT-TECHS/</a>
- W3C Checklist of Checkpoints for Web Content Accessibility Guidelines:
  - http://www.w3.org/TR/WAI-WEBCONTENT/full-checklist.html
- How to use <noframes>
   http://hotwired.lycos.com/webmonkey/html/96/33/index2a.html

PowerPoint presentation online at:

http://www.echothebat.com/accessibility/talk.html